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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,196	06/14/2006	Kurt Brunner	63572A	7713
109 7590 05/22/2009 The Dow Chemical Company Intellectual Property Section P.O. Box 1967 Midland, MI 48641-1967				
EXAMINER				
VO, HAI				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
05/22/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/583,196

**Applicant(s)**

BRUNNER ET AL.

**Examiner**

Hai Vo

**Art Unit**

1794

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 and 25-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 25-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1. The art rejections over Wu et al (US 2002/0035164) in view of Hanada et al (US 2003/0186039) have been withdrawn in view of the present amendment. Wu does not teach or fairly suggest a thickness ratio set out in the claim. However, other art rejections are maintained.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 5-9, 25, and 27-34 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hanada et al (US 2003/0186039). Hanada teaches a multilayer sheet comprising a polypropylene foamed layer and at least one polypropylene resin layer on a surface of the foamed sheet (abstract, paragraphs 60 and 62). The ratio of the thickness of the foamed layer to that of the non-foamed layer is in the range of from 3 to 100 times

(paragraph 73). This encompasses the claimed range. The multilayer sheet has a thickness of 1 mm (table 1). The foam has an expansion ratio ranging from 3 to 10 (paragraph 31). As the expansion ratio is inversely proportional to the density of the foam, the foam will have a density ranging from 0.01 to 0.33 g/cm<sup>3</sup>. Grammage of the multilayer sheet will be ranging from 10 to 330 g/m<sup>2</sup>. This is overlapping with the claimed range.

$$0.01 \text{ g/cc} \times 1 \text{ mm} \times 10^3 = 10 \text{ g/m}^2,$$

$$0.33 \text{ g/cc} \times 1 \text{ mm} \times 10^3 = 330 \text{ g/m}^2,$$

Hanada does not specifically disclose  $S \geq 2 \times 10^{-7} G^{3.1872}$  and  $S = (S_m S_c)^{0.5}$ , wherein  $G$  is a grammage of the multilayer sheet expressed in g/m<sup>2</sup>;  $S$  is the geometric bending moment,  $S_m$  the maximum bending moment in the plane of the multilayer sheet and  $S_c$  the bending moment in the direction perpendicular to the plane direction of the multilayer sheet. However, it appears that the multilayer sheet meets all the structural limitations and chemistry as required by the claims. The multilayer sheet comprises a polypropylene foamed layer and at least one polypropylene resin layer on a surface of the foamed sheet (abstract, paragraphs 60 and 62). The thickness ratio of the foamed layer to the non-foamed layer is in the range of from 3 to 100 times (paragraph 73). This encompasses the claimed range. The multilayer sheet has a thickness, density and grammage within the claimed ranges. The multilayer sheet is useful as a packaging material that serves the same purpose as the multilayer sheet of the claimed invention. Therefore, it is the examiner's position that  $S \geq 2 \times 10^{-7} G^{3.1872}$  would be inherently present as like

material has like property. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990) which holds that products of identical chemical composition can not have mutually exclusive properties. The same token is applied to the average bending force, maximum sheet curl, water vapor transmission rate and oxygen transmission rate. Accordingly, Hanada anticipates or strongly the claimed subject mater.

5. Claims 3, 4, 10, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanada et al (US 2003/0186039) as applied to claim 1 above, and further in view of Andersen et al (US 5,506,046). Hanada does not teach a packaging material comprising a score line. Andersen, however, teaches a packaging material in the form of a food container comprising a plurality of score lines (figures 15A and 15B). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the packaging material of Hanada with multiple score lines so that the multilayer sheet can be folded into a container. Andersen does not specifically disclose the depth of the score line. However, it has been known in the art that the depth of the score line will depend on the type of score, the thickness of the multilayer sheet and the desired degree of bending along the score line. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the packaging material with the score line with a depth set out in the claim motivated by the desire to increase the range of bending motion while the score is not easily tearable.

6. The art rejections based on Hanada have been maintained for the following reasons.

Applicants content that Hanada fails to teach or fairly suggest the claimed invention. The examiner respectfully disagrees. Hanada teaches a multilayer sheet comprising a polypropylene foamed layer and at least one polypropylene resin layer on a surface of the foamed sheet (abstract, paragraphs 60 and 62). The ratio of the thickness of the foamed layer to that of the non-foamed layer is in the range of from 3 to 100 times (paragraph 73). This encompasses the claimed range. The multilayer sheet has a thickness of 1mm (table 1). The foam has an expansion ratio ranging from 3 to 10 (paragraph 31). As the expansion ratio is inversely proportional to the density of the foam, the foam would have a density ranging from 0.01 to 0.33 g/cm<sup>3</sup>. Grammage of the multilayer sheet will be ranging from 10 to 330 g/m<sup>2</sup>. This is overlapping with the claimed range.

$$0.01 \text{ g/cc} \times 1 \text{ mm} \times 10^3 = 10 \text{ g/m}^2,$$

$$0.33 \text{ g/cc} \times 1 \text{ mm} \times 10^3 = 330 \text{ g/m}^2,$$

The multilayer sheet has a thickness, density and grammage within the claimed ranges. The multilayer sheet is useful as a packaging material that serves the same purpose as the multilayer sheet of the claimed invention. Therefore, it is the examiner's position that the relationship between the grammage and the geometric mean bending moment, the average bending force, maximum sheet curl, water vapor transmission rate and oxygen transmission rate would be inherently present. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990).

7. Claims 1-10 and 25-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bambara et al (US 2005/0159496) in view of JP 2001-226509. Bambara teaches a multilayer sheet comprising a polypropylene foamed layer and at least one polypropylene resin layer on a surface of the foamed sheet (abstract, paragraph 128). Bambara discloses that the foam layer has a thickness ranging from 0.02 to 0.5 inches or 0.5 to 12 mm while the non-foamed layer has a thickness ranging from 0.0002 to 0.02 inches (paragraphs 141 and 142). The foam has a density ranging from 1.5 to 40 pcf or 24 to 640 kg/m<sup>3</sup> (paragraph 122). As a grammage is dictated by a thickness and density, it is not seen that the grammage would be outside the claimed range as the thickness and density are within the claimed ranges. Bambara does not teach the skin layer comprising a polymer including units derives from a 1-alkene monomer. JP'509 teaches a multilayer sheet comprising a polypropylene foamed layer and at least one polypropylene resin layer on a surface of the foamed sheet (abstract). The polypropylene resin layer includes a copolymer of propylene and 1-butene (paragraph 35). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the resin layer comprising an 1-alkene monomer because a polypropylene homopolymer and propylene copolymer with an alpha-olefin monomer have been shown in the art to be recognized equivalent polymers for the resin layer forming the packaging material.

Bambara discloses the foam layer has a thickness ranging from 0.02 to 0.5 inches or 0.5 to 12 mm while the non-foamed layer has a thickness ranging from 0.0002 to 0.02 inches (paragraphs 141 and 142). Bambara does not specifically

disclose the thickness of the foam layer that is seven to nine times the thickness of the non-foamed layer. However, since thickness ratio is recognized as a result-effective variable, difference in thickness ratio will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such thickness ratio is critical or provides unexpected results. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the packaging material having a thickness ratio of the foam layer to the non-foamed layer motivated by the desire to provide aesthetics, barrier properties without compromising the weight and cost savings to a final construction.

Bambara does not teach the packaging material comprising a crease. JP'509 teaches the packaging material including a ridge (paragraph 50). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the packaging material of Bambara with multiple score lines so that the multilayer sheet can be folded into a container. JP'509 does not specifically disclose the depth of the score line. However, it has been known in the art that the depth of the score line will depend on the type of score, the thickness of the multilayer sheet and the desired degree of bending along the score line. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the packaging material with the score line with a depth set out in the claim motivated by the desire to increase the range of bending motion while the score is not easily tearable.



Bambara as modified by JP'509 does not specifically disclose  $S \geq 2 \times 10^{-7} G^{3.1872}$  and  $S = (S_m S_c)^{0.5}$ , wherein  $G$  is the grammage of the multilayer sheet expressed in  $g/m^2$ ;  $S$  is the geometric bending moment,  $S_m$  the maximum bending moment in the plane of the multilayer sheet and  $S_c$  the bending moment in the direction perpendicular to the plane direction of the multilayer sheet. However, it appears that the resulting multilayer sheet meets all the structural limitations and chemistry as required by the claim. The multilayer sheet is useful as a packaging material that serves the same purpose as the multilayer sheet of the claimed invention. The multilayer sheet comprises a polypropylene foamed layer and at least one polypropylene resin layer on a surface of the foamed sheet (abstract, paragraph 128). The foam layer has a thickness ranging from 0.02 to 0.5 inches or 0.5 to 12 mm while the non-foamed layer has a thickness ranging from 0.0002 to 0.02 inches (paragraphs 141 and 142). The foam has a density and a grammage within the claimed ranges. Therefore, it is the examiner's position that a relationship between the geometric mean bending moment and the grammage, an average bending force, maximum sheet curl, water vapor transmission rate and oxygen transmission rate would be inherently present as like material has like property. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990).

8. The art rejections over Bambara in view of JP 2001-226509 have been maintained for the following reasons. Applicants aver that the combined teachings of the

applied references do not suggest the claimed invention. That is not true. Bambara as modified JP'509 teaches a resulting multilayer sheet comprising a polypropylene foamed layer and at least one polypropylene resin layer on a surface of the foamed sheet. The foam layer has a thickness ranging from 0.02 to 0.5 inches or 0.5 to 12 mm while the non-foamed layer has a thickness ranging from 0.0002 to 0.02 inches. The foam has a density and a grammage within the claimed ranges. The multilayer sheet is useful as a packaging material that serves the same purpose as the multilayer sheet of the claimed invention. Therefore, it is the examiner's position that a relationship between the geometric bending moment and the grammage, the average bending force, maximum sheet curl, water vapor transmission rate and oxygen transmission rate would be inherently present as like material has like property. It seems from the claim, if one meets the structure recited, the properties must be met or Applicant's claim is incomplete. This is in line with *In re Spada*, 15 USPQ 2d 1655 (1990).

Bambara as modified by JP'509 does not specifically disclose the thickness of the foam layer that is seven to nine times the thickness of the non-foamed layer. However, since thickness ratio is recognized as a result-effective variable, difference in thickness ratio will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such thickness ratio is critical or provides unexpected results. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the packaging material having a thickness ratio of the foam layer to the non-foamed layer motivated

by the desire to provide aesthetics, barrier properties without compromising the weight and cost savings to a final construction. Accordingly, the art rejections are maintained.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Vo whose telephone number is (571) 272-1485. The examiner can normally be reached on Monday through Thursday, from 9:00 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax

phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hai Vo/  
Primary Examiner, Art Unit 1794